



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/605,610	06/28/2000	Timothy M. Schmidl	TI-29425	5869

23494 7590 08/05/2005

TEXAS INSTRUMENTS INCORPORATED
P O BOX 655474, M/S 3999
DALLAS, TX 75265

EXAMINER

LY, ANH VU H

ART UNIT PAPER NUMBER

2667

DATE MAILED: 08/05/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/605,610

Applicant(s)

SCHMIDL ET AL.

Examiner

Anh-Vu H. Ly

Art Unit

2667

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 June 2005.
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-56 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed:
6) ☒ Claim(s) 1-4, 6-9, 11-24, 26-29 and 31-56 is/are rejected.
7) ☒ Claim(s) 5, 10, 25 and 30 is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
4) ☒ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. Applicant's request for reconsideration of the finality of the rejection of the last Office action is persuasive and, therefore, the finality of the Office Action dated March 10, 2005 is withdrawn.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-4, 6-9, 11-14, 21-24, 26-29, 31-34, and 39-56 are rejected under 35 U.S.C. 102(b) as being anticipated by Silventoinen, M. et al (WO 98/07291).

With respect to claims 1 and 21, Silventoinen discloses a wireless communication system (Fig. 1) comprising transmitter circuitry comprising circuitry from transmitting a plurality of frames to a receiver in a first cell (Fig. 3); wherein each of the plurality of frames comprises a bit group (Fig. 2, TS field); wherein the bit group uniquely distinguishes the first cell from a second cell adjacent the first cell (Fig. 2); wherein the transmitter circuitry further comprises circuitry for inserting a bit sequence into the bit group (Fig. 3); and wherein the bit sequence is selected from a plurality of bit sequences such that successive transmissions by the transmitter circuitry comprising a cycle of successive ones of the plurality of bit sequences (page 8, lines 1-17).

With respect to claims 2, 22, 11, 31, 42 and 51, Silventoinen discloses each frame of the sequence of frames comprises a midamble and wherein each midamble comprises one of the K different bit sequences (Fig. 2).

With respect to claims 3, 6-8, 11, 13, 23, 26-28, 31, 33, 43-44 and 52-53, Silventoinen discloses that K is two and/or four (page 7, line 31) and wherein the transmitter circuitry comprises a CDMA transmitter circuitry (Fig. 3).

With respect to claims 4, 9, 12, 24, 29, 32, 45 and 54, Silventoinen discloses that each frame of the sequence of frames has a corresponding system frame number and wherein each of the K different bit sequences is selected in response to the system frame number (page 7, lines 23-34).

With respect to claims 14 and 34, Silventoinen discloses that wherein the transmitter circuitry comprises TDMA transmitter circuitry (Fig. 3).

With respect to claims 39 and 48, Silventoinen discloses selecting a sequence of K different bit sequences (page 8, line 2); inserting the sequence of K different bit sequences into a group of K sequential frames of the sequence of frames (page 8, lines 5-6); and repeating the step of inserting at each successive group of K sequential frames of the sequence of frames (page 8, lines 6-7).

Art Unit: 2667

With respect to claims 40 and 49, Silventoinen discloses that wherein each frame of the sequence of frames comprises a data packet (Fig. 2).

With respect to claims 41 and 50, Silventoinen discloses that each frame of the sequence of frames comprises a voice packet (Fig. 2 discloses a voice packet of the cellular communication system, illustrated in Fig. 1).

With respect to claims 46-47 and 55-56, Silventoinen discloses that each frame of the sequence of frames is a CDMA frame and/or TDMA frame (Fig. 2).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 15-16 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Silventoinen (WO 98/07291) in view of Fazel et al (US Patent No. 6,275,506 B1).

With respect to claims 15-16 and 35, Silventoinen discloses a digital radio system (Fig. 1). Silventoinen does not disclose that the receiver comprising circuitry for identifying paths in plurality of frames as actual paths in response to a comparison of path positions resulting from successive correlation measures between successive ones of plurality of bit sequences in the

Art Unit: 2667

cycle and bit group in each of plurality of frames and from frames having a like chip position.

Fazel discloses (col. 11, lines 25-35) a method of correlating the received midamble information with known symbols, to produce channel state information (path identification and chip position). It would have been obvious to one having ordinary skill in the art at the time the invention was made to include the features of correlating the received midamble information with known symbols in Silventoinen's system, as suggested by Fazel, for producing channel station information.

4. Claims 15-20, 35, and 37-38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Silventoinen (WO 98/07291) in view of Klank (US Patent No. 6,690,658 B1).

With respect to claims 15-16 and 35, Silventoinen discloses a digital radio system (Fig. 1). Silventoinen does not disclose receiver comprising circuitry for identifying paths in plurality of frames from successive correlation measures between successive ones of plurality of bit sequences in the cycle and bit group in each of plurality of frames and from frames having a like chip position. Klank discloses (col. 15, lines 10-28) that in order to check the cluster identity (cell identification), the corresponding section of the control slot signal has to be demodulated, decoded, and compared with own cluster identity. A correlation with a sequence in accordance with the identity number can be made. Depending on the results and midamble correlation result, this yields different statements: Identity check positive, midambles: signals of their own cluster (chip like position); Identity check negative but midambles: signals of another cluster; Result negative, no midambles but some power may be sporadic interference. It would have been obvious to one having ordinary skill in the art at the time the invention was made to include

the feature of correlating midamble information in Silventoinen's system, as suggested by Klank, for identifying the actual paths in a cluster.

With respect to claims 17-18 and 37-38, Silventoinen discloses a wireless communication system (Fig. 1) comprising receiver circuitry comprising circuitry for receiving a plurality of frames from a transmitter in a first cell (Fig. 4); wherein each of the plurality of frames comprises a bit group having a bit sequence (Fig. 2, TS field); wherein the bit group uniquely distinguishes the first cell from a second cell adjacent the first cell (Fig. 2). Silventoinen does not disclose the receiver further comprises circuitry for identifying paths in plurality of frames as actual paths in response to a comparison of path positions resulting from successive correlation measures between successive ones of plurality of bit sequences in a cycle and bit group in each of plurality of frames and from frames having a like chip position. Klank discloses (col. 15, lines 10-28) that in order to check the cluster identity (cell identification), the corresponding section of the control slot signal has to be demodulated, decoded, and compared with own cluster identity. A correlation with a sequence in accordance with the identity number can be made. Depending on the results and midamble correlation result, this yields different statements: Identity check positive, midambles: signals of their own cluster (chip like position); Identity check negative but midambles: signals of another cluster; Result negative, no midambles but some power may be sporadic interference. It would have been obvious to one having ordinary skill in the art at the time the invention was made to include the feature of correlating midamble information in Silventoinen's system, as suggested by Klank, for identifying the actual paths in a cluster.

With respect to claim 19, Silventoinen discloses each frame of the sequence of frames comprises a midamble and wherein each midamble comprises the bit group (Fig. 2).

With respect to claim 20, Silventoinen discloses that K is two and/or four (page 7, line 31) and wherein the transmitter circuitry comprises a CDMA transmitter circuitry (Fig. 3).

5. Claim 36 is rejected under 35 U.S.C. 103(a) as being unpatentable over Silventoinen (WO 98/07291) in view of Alamouti et al (US Pub No. 2003/0219080 A1).

With respect to claim 36, Silventoinen discloses a digital radio system (Fig. 1). Silventoinen does not disclose applying channel estimates corresponding to actual paths to a maximal ratio combiner circuit. Alamouti discloses in Figs. 1, 3, and 4, wherein the outputs of channel estimator are fed into the combiner. It would have been obvious to one having ordinary skill in the art at the time the invention was made to include a combiner in Silventoinen's system, as suggested by Alamouti, to detect the a reliable signal from a plurality of received signals.

Allowable Subject Matter

6. Claims 5, 10, 25, and 30 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

7. Applicant's arguments with respect to claims 1-56 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Dabak et al (US Patent No. 6,775,260 B1) discloses space time transmit diversity for TDD/WCDMA systems.

Malkamaki et al (US Patent No. 5,479,444) discloses training sequence in digital cellular radio telephone system.

Jarbot et al (US Patent No. 6,816,507 B1) discloses air interface for telecommunications systems with cordless telecommunications between mobile and/or stationary transmitting receiving devices.

Hottinen et al (US Patent No. 5,995,499) discloses signal detection in a TDMA system.

Chen et al (US Patent No. 6,144,710) discloses joint maximum likelihood sequence estimation with dynamic channel description.

Stewart et al (US Patent No. 6,339,612 B1) discloses method and apparatus for joint detection of data in a direct sequence spread spectrum communications system.


9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anh-Vu H. Ly whose telephone number is 571-272-3175. The examiner can normally be reached on Monday-Friday 7:00am - 4:00pm.

Art Unit: 2667

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chi Pham can be reached on 571-272-3179. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

avl


CHI PHAM
SUPERVISORY PATENT EXAMINE
ELECTRONIC BUSINESS CENTER 2667 7/28/05